



**CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY**

Name(s) Spencer Hise; Anthony Serrano	Project Number J1312
Project Title Immersive Battlefield Video Games and Adrenaline Fluctuations as Measured through pH Variations within Players	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The reason and objective for this experiment was to see the effects of immersive and intense gaming on the body. We focused specifically on pH level in players due to the lack of information relative to gaming. The experiment was conducted in order to expand our knowledge of this subject, as well as other people's knowledge of the subject.</p> <p>Methods/Materials pH strips, water, a gaming system with controller, Battlefield 1 TM, 5 participants, pen, paper.</p> <p>Results All of our participants' results showed a drop in pH level with an average pH drop of .45. This means that the pH in their saliva has become more acidic over the course of gaming.</p> <p>Conclusions/Discussion The pH levels of all our participants dropped and in doing so became more acidic. Due to adrenaline's acidic compound, we were able to infer that adrenaline is produced during the gaming process. After learning this we were able to expand our knowledge of gaming's effects. This knowledge could be used by game developers and by the consumer of said game in multiple ways that would be very beneficial.</p>	
Summary Statement Our project on immersive gaming, as well as pH and its correspondence to adrenaline, showed the effects of gaming on the human body and gave us an insight on how engaging gaming can be.	
Help Received Yes, we had help from our parents, Susan and Edward Hise, and Irma and Luis Serrano provided supplies. Our participants, Edward Hise, Melissa Serrano, and Rebecca Hise helped by performing the required steps for the experiment. Our teacher Mrs. Nogueira also helped us in consolidating an effect of gaming to	